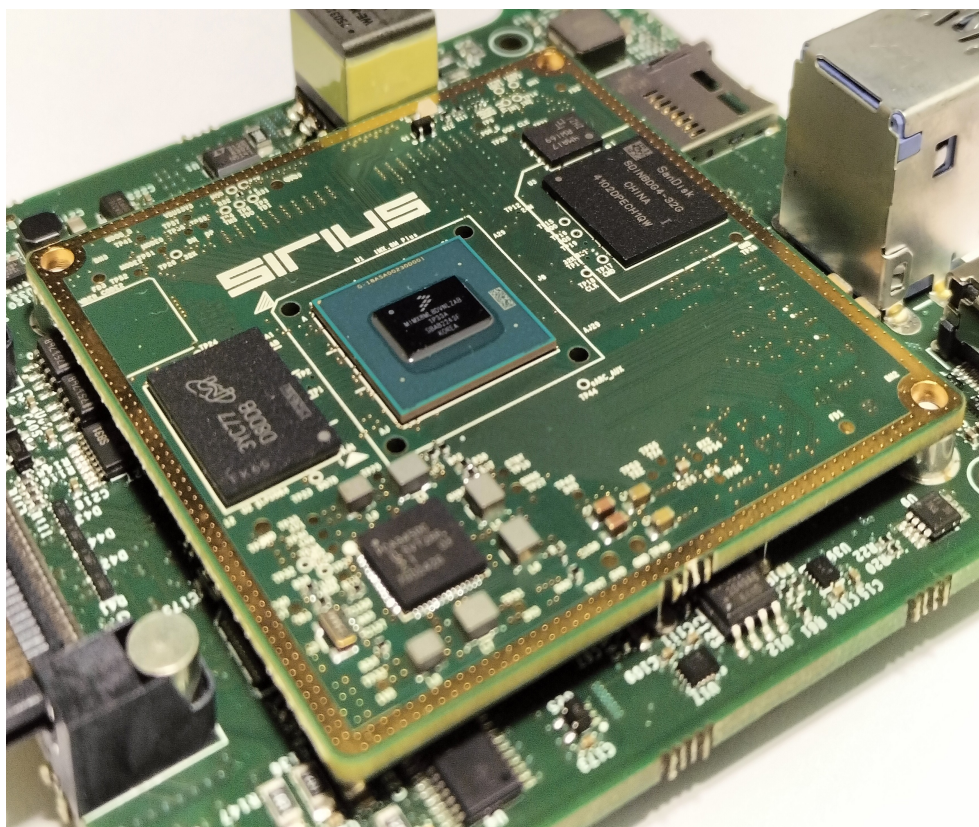


IMX8M PLUS SOM

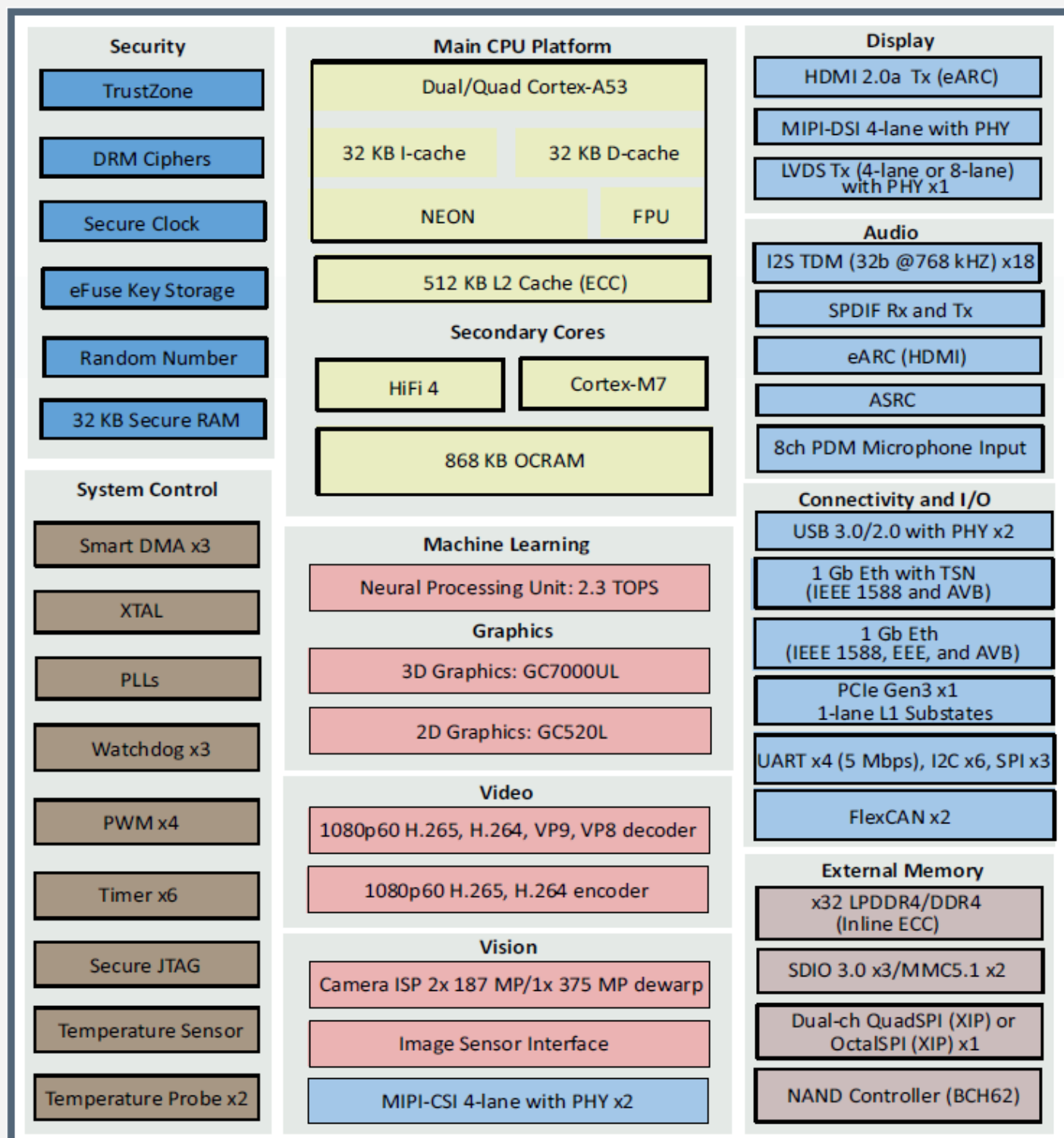


Introduction

IMX8M plus is the suited processor in industrial automation thanks to real-time Cortex® M7 that guarantee time controlled loop for user application and improve control networks with two CAN FD and two Gigabit Ethernet interfaces.

The four Cortex® A53 with FPU allow to perform every program in CPU and improve media processing using the integrated ISP, GPU and VPU and other blocks to acquire and display video and audio signal. With 2.3 TOP/s Neural Processing Unit the user's application can be powered and more shaped on the single usage case.

IMX8M PLUS System Block Diagram



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IMX8M PLUS Features

MPU	MIMX8ML8DVNLZAB (consumer) MIMX8ML8CVNKZAB (industrial)
Operative System	Linux®, Android®, Windows 10 IoT Enterprise, FreeRTOS
CPU	4x Cortex® A53 - Frequency 1.6 GHz industrial, 1.8 GHz consumer - Media Processor Engine (MPE) Arm® NEON™ - Floating Point Unit (FPU) Arm® VFPv4-D16 1x Cortex® M7 real-time co-processor (max 800 MHz)
External memory interface	32-bit DRAM up to 4.0 GT/s with DDR Inline ECC up to 64 Gb - LPDDR4-4000 - DDR4-3200 8-bit NAND-Flash (CLK max up to 100 MHz) eMMC 5.1 Flash (2 interfaces) SPI NOR Flash (3 interfaces) FlexSPI Flash for one Octal SPI or two parallel Quad SPI (both NAND and NOR are supported)
Neural Processing Unit (NPU)	2.3 TOP/s Neural Network performance Keyword detect, noise reduction, beamforming Speech recognition Image recognition
Image Sensor Processor (ISP)	375 Mpixel/s HDR in configurations 1x12MP@30fps or 1x 4kp45 or 2x 1080p80
Audio	Cadence® Tensilica® HiFi 4 DSP, up to 800 MHz Six external synchronous audio interface (SAI) ASRC supports processing 32 audio channels, 4 context groups, 8 kHz to 384 kHz sample rate, and 1/16 to 8x sample rate conversion ratio.
Graphic Processing Unit (GPU)	Core GC7000UL with CLK of 1000 MHz 1.0 giga pixel/sec 16 GFLOPs 32-bit Rendering in 2D and 3D (2 shaders with 1000 MHz frequency)
MIPI Interface	Two instances of 4-lane MIPI CSI interface and HDR ISP - Single Camera up to 500 MHz pixel clock - Dual Camera up to 266 MHz pixel clock 2x ISP for HDR support of both Cameras
Video Processing Unit (VPU)	Video Decode 1080p60 (HEVC/H.265, AVC/H.264, VP8, VP9) Video Encode 1080p60 (HEVC/H.265, AVC/H.264)
HDMI 2.0a Tx	Support one display Various resolutions from 720 x 480p60 to 3840 x 2160p30 with pixel clock up to 297 MHz Audio support with 32 audio channels

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IMX8M PLUS Features (continued)

LCDIF Display Controller	Different instances supported to pixel matrix configuration Configuration example - 2x LCDIF instances: 2x 1920x1200p60 display - 3x LCDIF instances: 2x 1080p60 + 1x 4kp30 on HDMI
Connectivity	2x Gigabit Ethernet with AVB, IEEE 1588, EEE and 1x w/ TSN 2x USB 3.0/2.0 Dual-Role with PHY type C PCIe Gen 3 3x SDIO 3.0 2x CAN FD
Security	Resource Domain Controller (RDC) that supports 4 domains and up to 8 regions of DDR Arm® TrustZone® (TZ) architecture: Cortex®-A53 MPCore TrustZone® support On-chip RAM (OCRAM) secure region protection using OCRAM controller Cryptographic Acceleration and Assurance Module (CAAM) - Public Key Cryptography (PKHA) with RSA and Elliptic Curve (ECC) algorithms - Real-time integrity checker (RTIC) - DRM support for RSA, AES, 3DES, DES - True random number generation (RNG) - Manufacturing protection support Secure Non-Volatile Storage (SNVS) Secure real-time clock (RTC)

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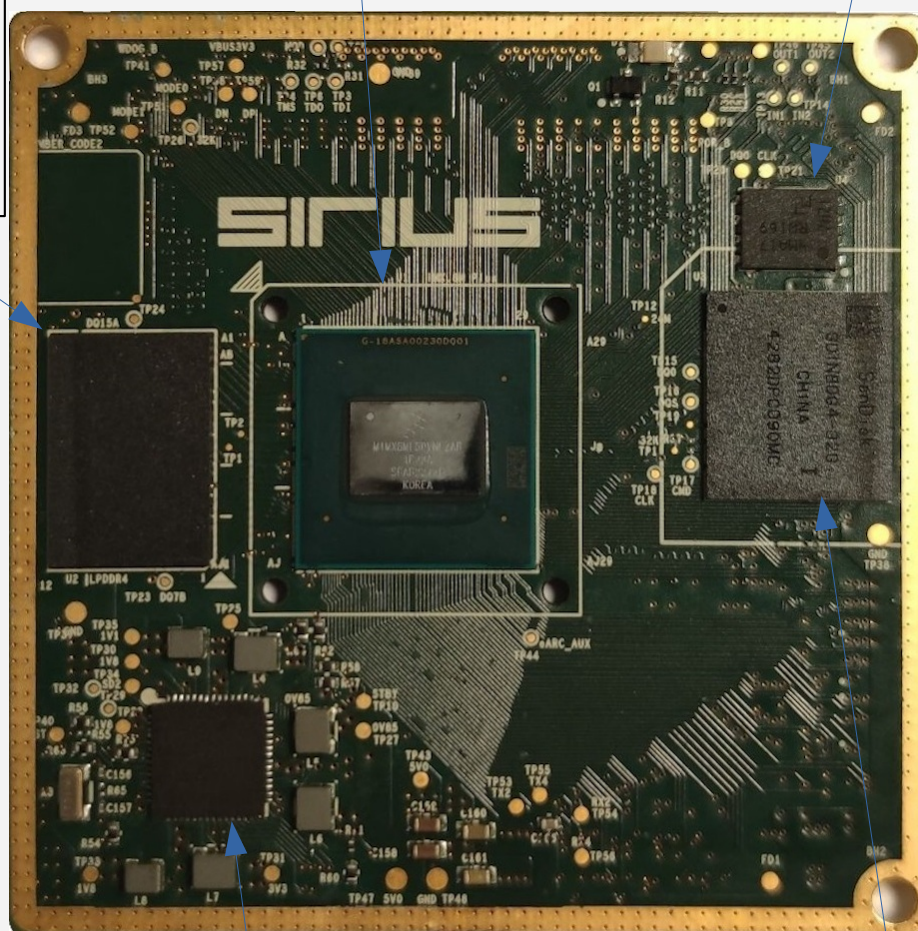
IMX8M PLUS processor

NOR QSPI

- 32 MB
- Clock up to 166 MHz

LPDDR4

- 6GB
- Programmable R/W latency
- Clock up to 2,133GHz
- Directed per-bank refresh



PMIC

- 5V base board input
- All SOM power supply
- V_SD @ 3,3V to base board
- VDD @ 3,3V to base board
- VDD @ 1,8V to base board

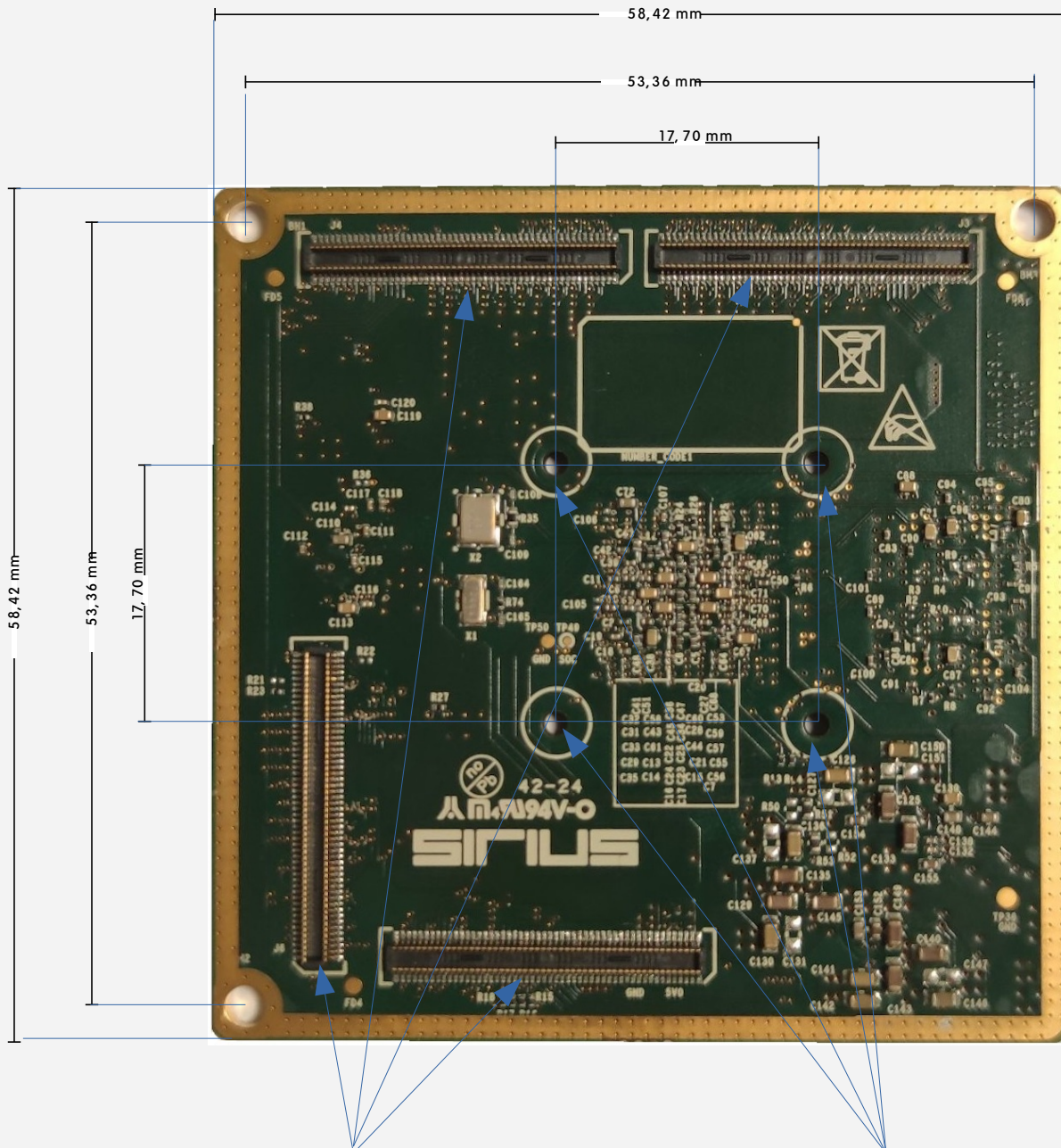
EMMC

- 32GB
- Read @ 300MB/s
- Write @ 170 MB/s

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SOM INTERFACE

- 4x 100 pin connector
- Double row male header
- 0,4 mm pitch

Heat sink mounting holes

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